

INVASIVE SPECIES MANAGEMENT WITH VOLUNTEERS PROJECT PROPOSAL

Name of Project: Mechanical Control of Invasive Plants: Banana Poka and English Holly

Refuge/Wetland Management District: Hakalau Forest Unit, Hakalau Forest NWR

Project Description: Hakalau Forest NWR was established to conserve endangered forest birds and their habitats. The Refuge supports a diversity of native plants and birds, including 27 which are listed under the Endangered Species Act. Management actions have led to stable or increasing populations of most forest bird species, improvements in forest habitats, and expansion of native and endangered plant species. These gains are threatened by invasion of exotic plants, animals and disease. Two invasive plants, banana poka and English holly were identified as highest priority target invasive species in Hakalau Forest NWR's 2010 Comprehensive Conservation Plan (CCP). Control and monitoring of these invasive species is accomplished through Integrated Pest Management (IPM) techniques, including mechanical and chemical methods. Banana poka is a vine with seeds that are dispersed by native and introduced animals. English holly is a tall shrub that can spread via seeds or vegetatively. Both plants can out-compete native species. Aerial vines of banana poka are removed manually, while ground hugging vines are treated using foliar spray. Mature plants of English holly are cut and stumps are treated with herbicide. However, new plants that sprout from the roots of treated plants need to be mechanically removed.

Friends Groups, Volunteers and Other Partners: We propose to organize teams to conduct mechanical removal of these invasive plant species. The proposed activities will be conducted in 4 expeditions, using 15-20 volunteers, Friends Group members and personnel from other Hawaii based conservation organizations.

Public Outreach and/or Environmental Education: The Refuge biologist and other staff will accompany these expeditions. In addition to supervising control activities, they will lead volunteers through the forest to identify native bird and plant species, and explain ecological processes occurring there. Staff will also provide background on the purposes of the Refuge, successful management actions and threats to these species and habitat.

Post-treatment Monitoring: Surveys of weeds and feral ungulate activity are done annually. Data on the occurrence and the density of weeds are collected in a contiguous series of 5 x 10 meter plots along 17 transects covering the upper portions of the refuge. These transect were also used as part of statewide weed surveys conducted in 1987 and 2007. Survey data are entered in to GIS and maps showing distribution and abundance of weed species are created to evaluate effectiveness of control efforts and areas where additional efforts are needed.

Criteria for Project Success: Success will be measured by the number of acres cleared of invasive species, as well as by the number of volunteers that gain a better understanding of the ecology of the rain forest habitats and species of the Refuge through working there.

Budget: Vehicle Rental: 5 large passenger SUVs @ \$175/day for 8 days = \$7,000; Fuel; 400 gallons @ 4.50/gal = \$1,800; Machete (14"); 10 @ \$20 each = \$200; **Total = \$9,000**